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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,791	03/08/2001	Nicholas F. Borrelli	SP00-139	8335

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EXAMINER	
KAO, CHIH CHENG G	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/802,791	BORRELLI ET AL.	
	Examin r	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) *1-4,6-13,16 and 17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-13,16 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The proposed drawings filed on 1/13/03 have been approved. However, new corrected replacement drawings are still required in this application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auzel et al. (US Patent 5858891).

3. Regarding claim 1, Auzel et al. discloses a glass-ceramic rare earth doped material (Title) wherein at least 90% of the rare earth dopant is situated within crystallites (col. 2, lines 49-51). Note that Auzel et al. would necessarily have stimulated emission and absorption line shapes narrower than its precursor rare earth doped glass, since the dopants within the crystallites would create the sharper shapes compared to dopants outside the crystallites. Also note that Auzel et al. discloses a fiber (col. 4, lines 20-45).

However, Auzel et al. does not specifically disclose a fiber with these material characteristics.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the characteristics of the material of Auzel et al. into a fiber, since one would be motivated to incorporate them to create optimum emissions and amplifications in a laser (col. 4, lines 20-24 and 38-45) as shown by Auzel et al.

4. Regarding claims 2-4, Auzel et al. further discloses crystallites as 10nm or smaller (col. 2, lines 37-41).

5. Regarding claim 6, Auzel et al. further discloses the rare earth dopant as Pr, Er, Tm, or Dy (col. 2, lines 1-6), where dopant level is greater than 100ppm (col. 4, line 28).

6. Claims 7-12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Auzel et al. in view of Ainslie et al. (US Patent 4936650).

7. Regarding claim 7 and for purposes of being concise, Auzel et al. suggests a fiber as recited above in an optical amplifier (col. 4, lines 20-45). Also note that Auzel et al. would necessarily have a stimulated emission profile narrower than its precursor rare earth doped glass, since the dopants within the crystallites would create the sharper profile compared to dopants outside the crystallites.

However, Auzel et al. does not specifically disclose an optical amplifier with an input, a fiber coupled to the input and optical pump, an output, and an optical component between the input and output.

Ainslie et al. teaches an optical amplifier (Abstract, lines 1-2) with an input (Fig. 3, #33), a length of fiber coupled to the input (Fig. 3, #30) and optical pump (Fig. 3, #34), an output (Fig. 3, #35), and an optical component between the input and output (Fig. 3, #37).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the suggested device of Auzel et al. with the amplifier of Ainslie et al., since one would be motivated to incorporate this for better amplification of signals across optical telecommunication systems (col. 1, lines 8-12) as implied from Ainslie et al.

8. Regarding claim 8, Auzel et al. further discloses the dopant as Pr, Nd, Tm, Dy, or Er (col. 2, lines 1-6).

9. Regarding claims 9 and 10, Auzel et al. further discloses crystallites as 100nm or smaller (col. 2, lines 37-41).

10. Regarding claims 11 and 12, Auzel et al. further discloses essentially all dopant in the microcrystalline phase and none in the surrounding glass (col. 2, lines 49-51).

11. Regarding claims 16 and 17, Auzel et al. further discloses the rare earth dopant as Nd (col. 2, line 3), which would necessarily have absorption peaks in the 1320 to 1360 nm range narrower than that of its precursor rare earth doped glass and a shift in ESA spectrum in the 1320 nm to 1360 nm wavelength range, due to the dopants being within the crystallites as opposed to being outside the crystallites (col. 2, lines 49-51) and heat treatment (col. 4, lines 30-33).

12. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Auzel et al. in view of Ainslie et al. as applied to claim 7 above, and further in view of Arima (US Patent 6217204).

Auzel et al. in view of Ainslie et al. suggests a device as recited above.

However, Auzel et al. does not disclose a filter.

Arima teaches a filter (Fig. 1, #10).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the suggested device of Auzel et al. in view of Ainslie et al. with the filter of Arima, since one would be motivated to incorporate it to reduce noise as shown by Arima (col. 1, lines 61-67).

Response to Arguments

13. Objections to the claims in the Office Action mailed 3/25/04 have been withdrawn in light of the Amendment filed 5/24/04.

14. Applicant's arguments with respect to claims 1-4, 6-13, 16, and 17 have been considered but are moot in view of the new ground(s) of rejection.

Regarding Applicant's arguments with Auzel et al. not showing a fiber, the Examiner agrees that the reference does not specifically recite an optical fiber with those specific characteristics in the glass material. However, the invention as claimed would have still been

obvious, to one having ordinary skill in the art at the time the invention was made, and unpatentable over Auzel et al.

Applicant previously argued that most glass ceramic materials are not suitable for fiberization because the material has to be re-heated at high temperatures suitable for fiber draw above liquidus. Although, such a possibility for making a fiber this way exists, one of ordinary skill in the art would not make a fiber this way, since such a process may defeat the purpose of using these material characteristics in an optical fiber for an amplifier due to alterations in its make-up as alleged by Applicant.

As noted by Auzel et al. (col. 4, lines 28-32), the initial compounds are melted, molded, and later heat-treated to produce the desired characteristics (col. 2, lines 37-51) of the material. If one of ordinary skill in the art would want to incorporate the characteristics of the glass material into a fiber for an optical amplifier, motivated by optimum emissions in lasers, one would just melt the material to the same melting temperature that one used when creating the glass material and then mold and heat-treat to the desired fiber shape instead of a flat planar waveguide shape. One of ordinary skill in the art would not create a fiber using temperatures much higher than liquidus, since such temperatures may destroy the characteristics initially desired for use in an optical amplifier as alleged by Applicant. On the contrary, one of ordinary skill in the art would just use high enough temperatures to create the characteristics into material to be molded into a fiber shape. Thus, the invention as claimed at least in claims 1-4 and 6 is obvious and unpatentable over Auzel et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gk

DAVID V. BRUCE
PRIMARY EXAMINER